ARTERY SMOOTH MUSCLE- AND VEIN SMOOTH MUSCLE-SPECIFIC PROTEINS AND USES THEREFOR

ABSTRACT OF THE DISCLOSURE

Arterial and venous smooth muscle cells are molecularly distinct from the earliest stages of angiogenesis through to adulthood. This distinction is revealed by expression on arterial cells (e.g., arterial endothelial cells, arterial smooth muscle cells) of a transmembrane ligand, called EphrinB2 whose receptor EphB4 is expressed on venous cells. Targeted disruption of the *EphrinB2* gene prevents the remodeling of veins from a capillary plexus into properly branched structures. Moreover, it also disrupts the remodeling of arteries, suggesting that reciprocal interactions between pre-specified arterial and venous cells are necessary for angiogenesis. Expression of EphrinB2 in arterial cells (e.g., arterial endothelial cells, arterial smooth muscle cells) can be used to advantage in methods for targeting agents and/or encoded polypeptides to arterial smooth muscle cells, altering angiogenesis, assessing the effect of agents on arterial smooth muscle cells, identifying arterial smooth muscle cells, isolating arterial smooth muscle cells and production of artificial vessels, for example.